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Kramer Electronics, Ltd.

USER MANUAL

Model:

VP-108

1:8 XGA / Balanced Stereo Audio DA

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1 Introduction

Welcome to Kramer Electronics! Since 1981, Kramer Electronics has been providing a world of unique, creative, and affordable solutions to the vast range of problems that confront the video, audio, presentation, and broadcasting professional on a daily basis. In recent years, we have redesigned and upgraded most of our line, making the best even better! Our 1,000-plus different models now appear in 11 groups[1] that are clearly defined by function.

Congratulations on purchasing your Kramer **VP-108** *1:8 XGA / Balanced Stereo Audio DA* (distribution amplifier)**,** which is ideal for using with presentation systems, and video duplication and production studios.

The package includes the following items:

- **VP-108** *1:8 XGA / Balanced Stereo Audio DA*
- Power cord
- Windows®-based Kramer control software
- Null-modem adapter
- This user manual[2]

2 Getting Started

We recommend that you:

- Unpack the equipment carefully and save the original box and packaging materials for possible future shipment
- Review the contents of this user manual
- Use Kramer high performance high resolution cables[3]

2.1 Quick Start

This quick start chart summarizes the basic steps when connecting a **VP-108**:

1 GROUP 1: Distribution Amplifiers; GROUP 2: Switchers and Matrix Switchers; GROUP 3: Control Systems; GROUP 4: Format/Standards Converters; GROUP 5: Twisted-Pair Solutions; GROUP 6: Specialty AV Products; GROUP 7: Scan Converters and Scalers; GROUP 8: Cables and Connectors; GROUP 9: Room Connectivity; GROUP 10: Accessories and Rack Adapters; GROUP 11: Sierra Products

2 Download up-to-date Kramer user manuals from the Internet at this URL: http://www.kramerelectronics.com

3 The complete list of Kramer cables is on our Web site at http://www.kramerelectronics.com

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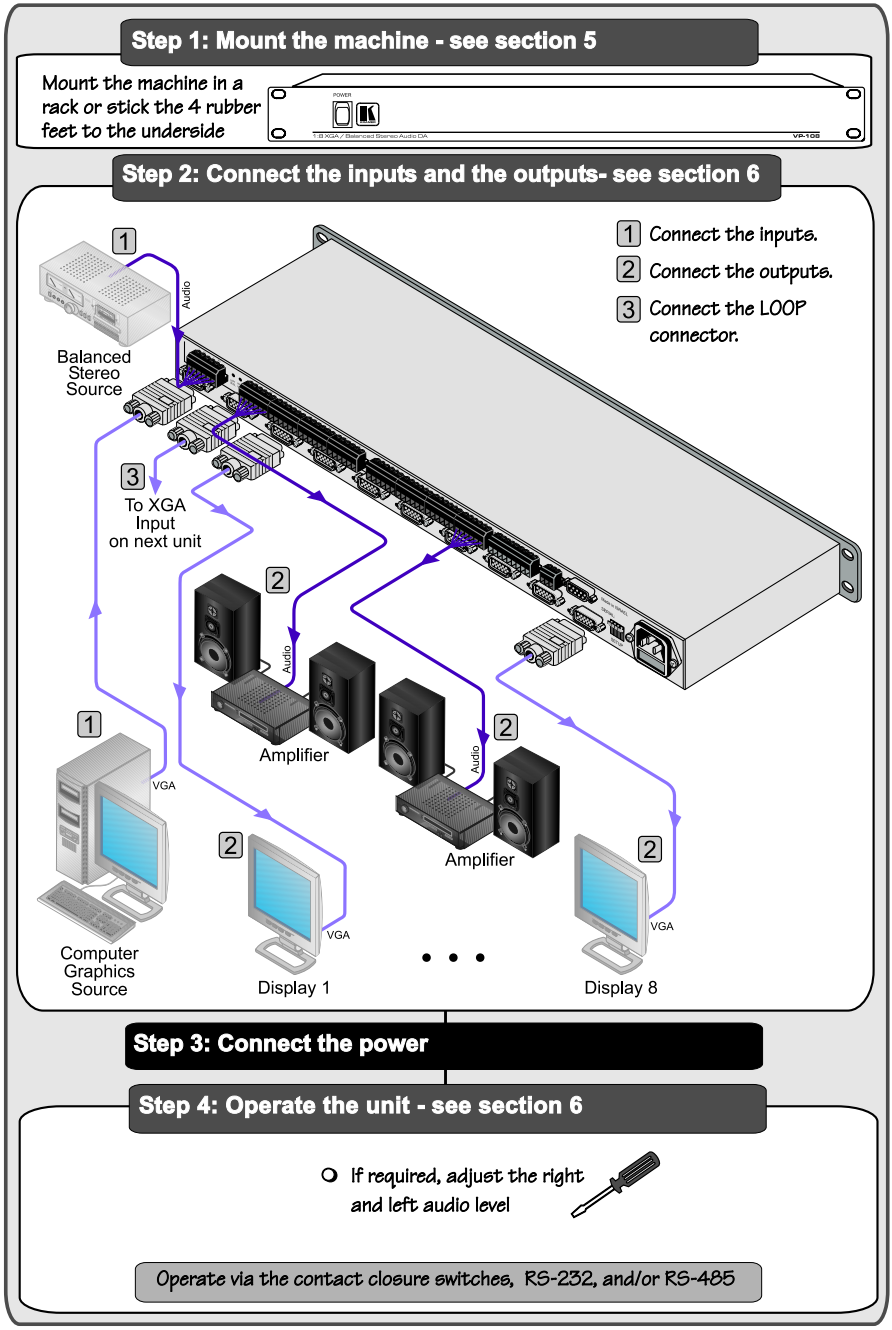
Step 1: Mount the machine - see section 5
Mount the machine in a rack or stick the 4 rubber feet to the underside
Step 2: Connect the inputs and the outputs- see section 6
1 Connect the inputs.
2 Connect the outputs.
3 Connect the LOOP connector.
Balanced Stereo Source
Audio
To XGA Input on next unit
Amplifier
Amplifier
Computer Graphics Source
VGA
Display 1
Display 8
Step 3: Connect the power
Step 4: Operate the unit - see section 6
If required, adjust the right and left audio level
Operate via the contact closure switches, RS-232, and/or RS-485

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3 Overview

The high-performance **VP-108** *1:8 XGA / Balanced Stereo Audio DA* is an 8-channel distribution amplifier for VGA/XGA and stereo audio (balanced or unbalanced) that uses 15-pin HD connectors for the VGA-type signals, and detachable terminal block connectors for the audio.

In particular, the **VP-108**:

- Is unique in that each of the eight XGA outputs, and each of the eight stereo audio outputs, may be individually enabled or disabled[1], replacing a switcher which would typically be used in such setups
- Is controllable (switching of the outputs) via RS-232 or RS-485 serial commands transmitted by a touch screen system, PC, or other serial controller, as well as via external dry contact switches
- Stores the output configuration in non-volatile memory so that the machine will restore its power-down status when power is returned
- Uses solid-state electronic switching, and low-noise amplifying circuitry throughout the unit, and the sync pulses are detected and reconstructed before amplifying and buffering to the outputs
- Has a high video bandwidth, ensuring that each unit remains transparent even at the highest resolution VGA modes such as XGA

Achieving the best performance means:

- Connecting only good quality connection cables, thus avoiding interference, deterioration in signal quality due to poor matching, and elevated noise levels (often associated with low quality cables)
- Avoiding interference from neighboring electrical appliances and positioning your **VP-108** unit in a location free from moisture, excessive sunlight and dust

4 Your VP-108 1:8 XGA / Balanced Stereo Audio DA

Figure 1 and Table 1 define the **VP-108** *1:8 XGA / Balanced Stereo Audio DA*:

1 Using the REMOTE connector (see section 6.3) or via RS-232 or RS-485

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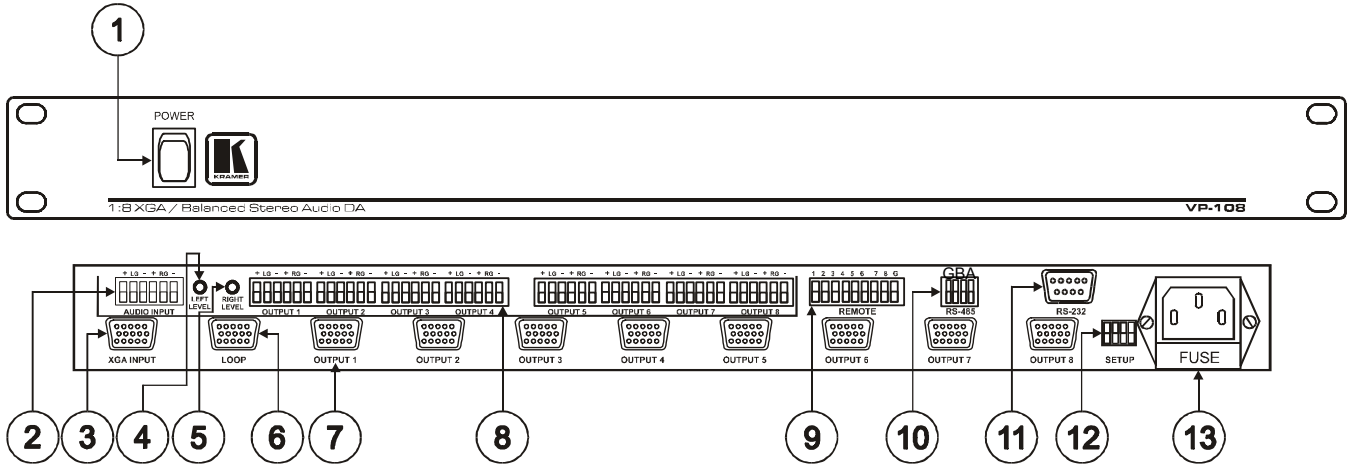

Figure 1: VP-108 1:8 XGA / Balanced Stereo Audio DA

Table 1: VP-108 1:8 XGA / Balanced Stereo Audio DA Features

#	Feature	Function
1	*POWER* Switch	Illuminated switch for turning the unit ON or OFF
2	*AUDIO INPUT* Terminal Block Connector	Connect to the balanced stereo audio source
3	*XGA INPUT* 15-pin HD Connector	Connect to the XGA source
4	*LEFT LEVEL* Trimmer	Adjust[1] the left output signal level
5	*RIGHT LEVEL* Trimmer	Adjust[1] the right output signal level
6	*LOOP* 15-pin HD Connector	For looping to increase output availability
7	*OUTPUT* Terminal Block Connectors	Connect to the balanced stereo audio acceptors (from 1 to 8)
8	*OUTPUT* 15-pin HD Connectors	Connect to the XGA acceptors (from 1 to 8)
9	REMOTE Terminal Block Connectors	Connect to the contact closure switches
10	*RS-485* Connector	RS-485 detachable terminal block port
11	*RS-232* 9-pin D-sub Connector	Connect to PC or other Serial Controller
12	SETUP Dipswitches	Dipswitches for setup of the unit
13	Power Connector with *Fuse*	AC connector enabling power supply to the unit

Figure 2 and Table 2 define the underside controls:

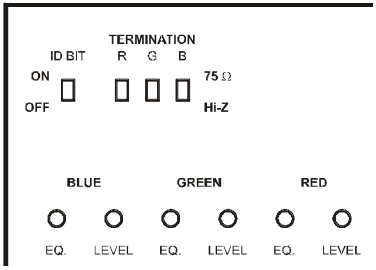

Figure 2: VP-108 Underside

Table 2: VP-108 Underside Features

Feature	Function
ID BIT Switch	Set to ON position[2] to select the ID BIT[3]
TERMINATION[4] Switch	Set to ON position[2] to terminate with 75Ω, or move to Hi-Z for looping
EQ.[4] Trimmers	Adjust[1] the cable compensation equalization levels for blue, green and red
LEVEL[4] Trimmers	Adjust[1] the output signal levels for blue, green and red

1 Insert a screwdriver into the small hole and carefully rotate it

2 The factory default

3 Sometimes notebook computers refuse to output a VGA signal to an external VGA monitor if they do not detect the ID BIT as ON. Set the ID BIT to ON using this switch so that the notebook will output to an external VGA monitor

4 Separately for Blue (B), Green (G) and Red (R)

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5 Installing the VP-108 in a Rack

This section describes what to do before installing in a rack and how to rack mount.

Before Installing in a Rack

Before installing in a rack, be sure that the environment is within the recommended range:	
Operating temperature range	+5º to +45º C (41º to 113º F)
Operating humidity range	10 to 90% RHL, non-condensing
Storage temperature range	-20º to +70º C (-4º to 158º F)
Storage humidity range	5 to 95% RHL, non-condensing

CAUTION!!

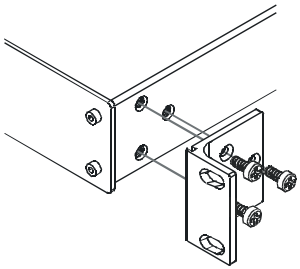
When installing in a 19" rack, avoid hazards by taking care that:

1. It is located within the recommended environmental conditions, as the operating ambient temperature of a closed or multi unit rack assembly may exceed the room ambient temperature.
2. Once rack mounted, enough air will still flow around the machine.
3. The machine is placed straight in the correct horizontal position.
4. You do not overload the circuit(s). When connecting the machine to the supply circuit, overloading the circuits might have a detrimental effect on overcurrent protection and supply wiring. Refer to the appropriate nameplate ratings for information. For example, for fuse replacement, see the value printed on the product label.
5. The machine is earthed (grounded) in a reliable way and is connected only to an electricity socket with grounding. Pay particular attention to situations where electricity is supplied indirectly (when the power cord is not plugged directly into the socket in the wall), for example, when using an extension cable or a power strip, and that you use only the power cord that is supplied with the machine.

How to Rack Mount

To rack-mount a machine:

1. Attach both ear brackets to the machine. To do so, remove the screws from each side of the machine (3 on each side), and replace those screws through the ear brackets.



2. Place the ears of the machine against the rack rails, and insert the proper screws (not provided) through each of the four holes in the rack ears.

Note that:

- **In some models, the front panel may feature built-in rack ears**
- Detachable rack ears can be removed for desktop use
- Always mount the machine in the rack before you attach any cables or connect the machine to the power
- If you are using a Kramer rack adapter kit (for a machine that is not 19"), see the Rack Adapters user manual for installation instructions (you can download it at: http://www.kramerelectronics.com)

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6 Connecting the VP-108 1:8 XGA / Balanced Stereo Audio DA

To connect the **VP-108** *1:8 XGA / Balanced Stereo Audio DA*, as the example in Figure 3 illustrates, do the following[1]:

1. Connect the XGA graphics source (for example, a PC) to the XGA INPUT 15-pin HD connector, and connect[2] the balanced stereo audio source to the AUDIO INPUT terminal block connector.
2. Connect up to 8 XGA OUTPUT 15-pin HD connectors to the XGA acceptors (for example, XGA monitors), and connect[2] the corresponding AUDIO OUTPUT terminal block connectors to the stereo audio acceptors (for example, pairs of stereo loudspeakers).
3. Connect the LOOP 15-pin HD connector (OPTIONAL) to the XGA INPUT 15-pin HD connector on an additional unit to increase video outputs.
4. Set the dipswitches (see section 6.2.1).
5. Set the switches on the underside for looping[3] (see Figure 2).
6. Connect the power cord[4].
7. Adjust the left and right audio signal levels, if required.
8. If required[5], connect a PC and/or controller to the RS-232 port (see section 6.2), and/or the RS-485 port.
9. If required, connect a remote contact closure switch (see section 6.3).

1 Switch OFF the power on each device before connecting it to your VP-108. After connecting your VP-108, switch on its power and then switch on the power on each device. Switching on the VP-108, recalls the last status prior to powering down

2 See section 6.1 for a description of how to connect a balanced/unbalanced stereo audio input/output

3 The default settings are for non-looping

4 The power connector is not illustrated in Figure 3

5 Not illustrated in Figure 3

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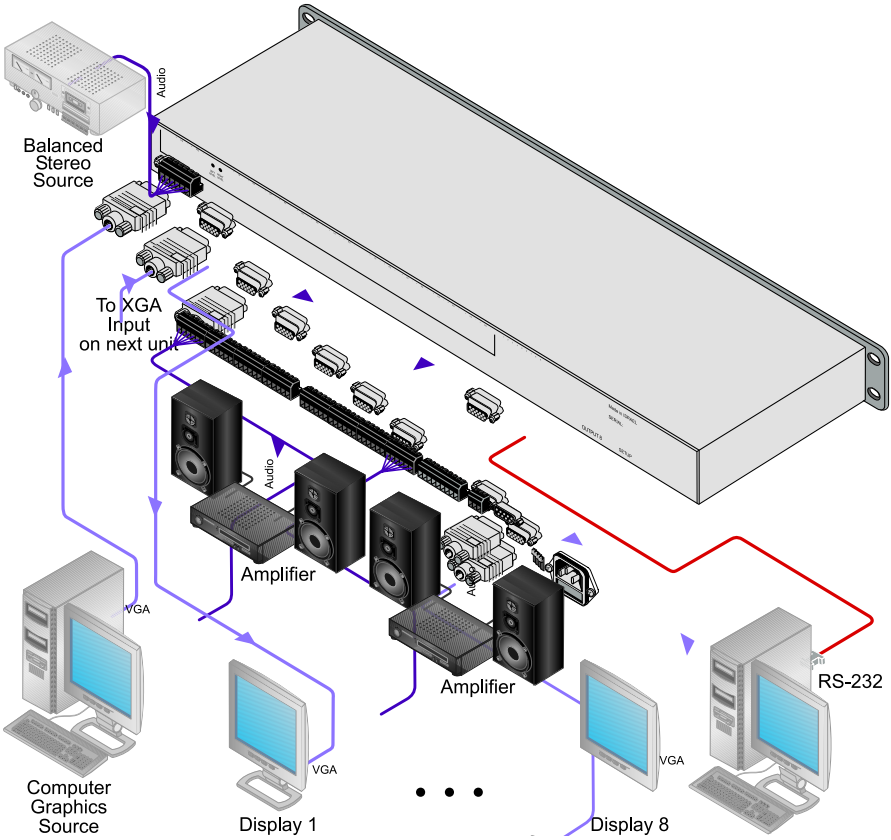

Figure 3: Connecting the VP-108 1:8 XGA / Balanced Stereo Audio DA

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6.1 Connecting the Balanced/Unbalanced Stereo Audio Input/Output

Figure 4 illustrates how to wire a balanced input/output connection:

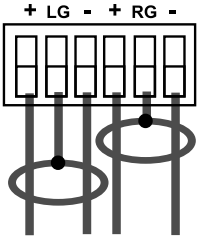

Figure 4: Connecting the Balanced Stereo Audio Input/Output

Figure 5 illustrates how to wire an unbalanced acceptor to the balanced output of the unit:

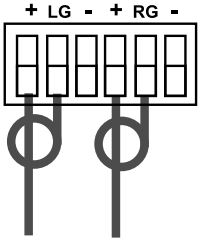

Figure 5: Connecting the Unbalanced Stereo Audio Output

Figure 6 illustrates how to connect an unbalanced source to the balanced input on the **VP-108**:

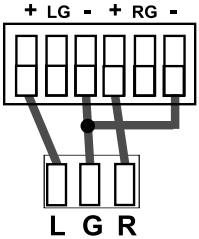

Figure 6: Connecting an Unbalanced Source to the Balanced VP-108 Input

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6.2 Controlling via RS-232 (for example, using a PC)

To connect a PC to the **VP-108** unit(s), using the Null-modem adapter provided with the machine (recommended):

- Connect the RS-232 9-pin D-sub rear panel port on the **VP-108** unit to the Null-modem adapter and connect the Null-modem adapter with a 9-wire flat cable to the RS-232 9-pin D-sub port on your PC

To connect a PC to the **VP-108** unit, without using a Null-modem adapter:

- Connect the RS-232 9-pin D-sub port on your PC to the RS-232 9-pin D-sub rear panel port on the **VP-108** unit, as Figure 7 illustrates

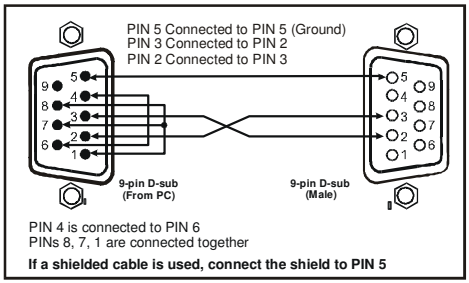
PIN 5 Connected to PIN 5 (Ground)
PIN 3 Connected to PIN 2
PIN 2 Connected to PIN 3
9-pin D-sub (From PC)
9-pin D-sub (Male)
PIN 4 is connected to PIN 6
PINs 8, 7, 1 are connected together
If a shielded cable is used, connect the shield to PIN 5

Figure 7: Connecting a VP-108 Unit to a PC without using a Null-modem Adapter

6.2.1 Setting the Dipswitches

Figure 8 illustrates the factory default SETUP dipswitches:

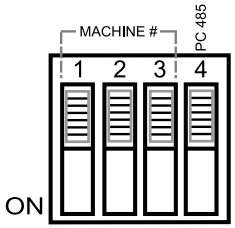

Figure 8: SETUP Dipswitches

Table 3: Dipswitch Settings

Function	DIPS	Description
Machine #	1, 2, 3	Determines the position of a unit in the sequence (refer to section 0)
PC 485	4	Set ON when connecting the PC (or other controller) via the RS-485 port, set OFF when connecting the PC via the RS-232 port or when not connecting a PC

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6.2.2 Setting the MACHINE

The MACHINE # determines the position of a **VP-108** unit, specifying which **VP-108** unit is being controlled when several **VP-108** units connect to a PC or serial controller. Set the MACHINE # on a **VP-108** unit via DIPS 1, 2 and 3, according to Table 4.

When using a stand-alone **VP-108** unit, set the MACHINE # to 1. When connecting more than one **VP-108** unit, set the first machine (the Master) that is closest to the PC, as *MACHINE #* 1[1].

Table 4: Machine # Dipswitch Settings

MACHINE #	DIPSWITCH		
	1	2	3
1 Master	OFF	OFF	OFF
2	ON	OFF	OFF
3	OFF	ON	OFF
4	ON	ON	OFF
5	OFF	OFF	ON
6	ON	OFF	ON
7	OFF	ON	ON
8	ON	ON	ON

6.3 Connecting the REMOTE Connector

Connecting the REMOTE terminal block connector pins to a contact closure switch lets you to disable (and then enable again) output(s) by remote control[2]. To do so, touch (momentarily) the appropriate REMOTE terminal block connector pin to the Ground PIN, as Figure 9 illustrates.

For example to disable outputs 1, 2 and 8, touch (momentarily) PIN 1 to the Ground PIN, and then touch (momentarily) PIN 2 to the Ground PIN, and then touch (momentarily) PIN 8 to the Ground PIN.

Do not touch (momentarily) more than one PIN to the Ground PIN simultaneously.

1 Set the dipswitches to OFF

2 An output may also be disabled via RS-232 or RS-485

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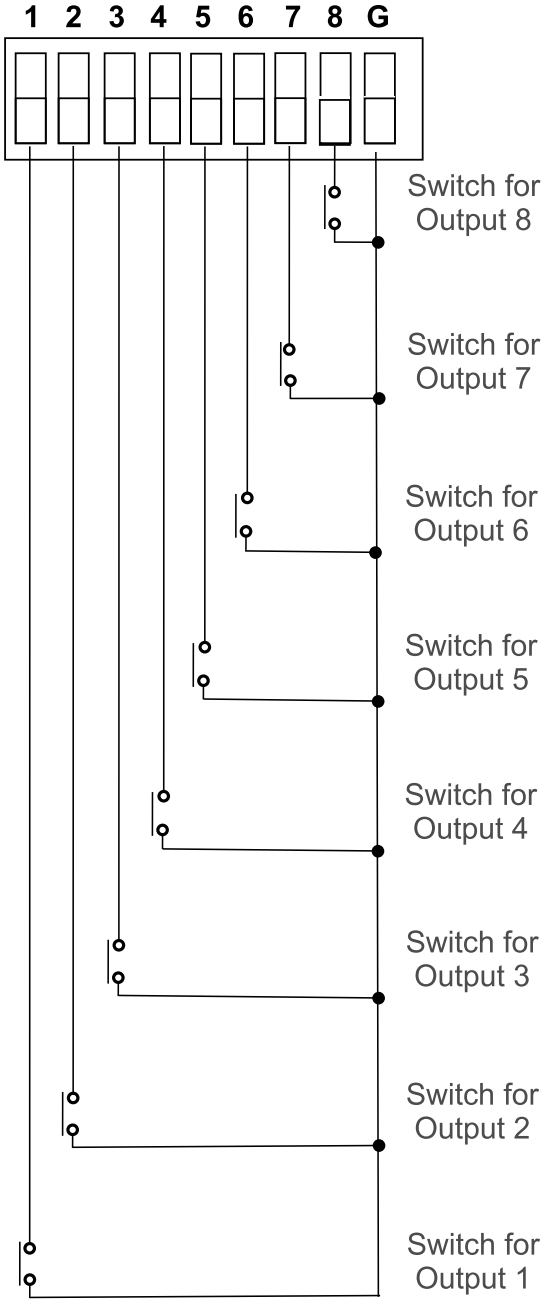
1 2 3 4 5 6 7 8 G
Switch for Output 8
Switch for Output 7
Switch for Output 6
Switch for Output 5
Switch for Output 4
Switch for Output 3
Switch for Output 2
Switch for Output 1

Figure 9: REMOTE Terminal Block Connector

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7 Technical Specifications

Table 5 includes the technical specifications:

Table 5: Technical Specifications[1] *of the VP-108 1:8 XGA / Balanced Stereo Audio DA*

INPUT:	1 XGA on an 15-pin HD connector; 1 balanced audio +4dBm 100kΩ on detachable terminal block connectors 1 LOOP on an 15-pin HD connector	
OUTPUTS:	8 XGA on 15-pin HD connectors; 8 balanced audio +4dBm 100kΩ on detachable terminal block connectors	
MAX. OUTPUT LEVEL:	VIDEO: 1.5Vpp	AUDIO: 25Vpp
BANDWIDTH (-3dB):	VIDEO: 400MHz	AUDIO: >100kHz
DIFF. GAIN:	0.03%	
DIFF. PHASE:	0.03 Deg.	
K-FACTOR:	<0.05%	
S/N RATIO:	VIDEO: 74.3dB	AUDIO: 93dB unweighted
CONTROLS:	VIDEO: Level : -1.1dB to +6.2dB; Equalization: 0dB to +8dB, 50MHz	AUDIO: Level : -0.9dB to +8.6dB
COUPLING:	VIDEO: DC	AUDIO: DC
AUDIO THD + NOISE:	0.005%	
AUDIO 2nd HARMONIC:	0.003%	
POWER SOURCE:	90-260 V AC, 50/60Hz, 25VA	
DIMENSIONS:	19-inch (W), 7-inch (D), 1U (H) rack mountable	
WEIGHT:	2.6kg (5.7lbs) approx.	
ACCESSORIES:	Power cord, Null modem adapter, Windows®-based Kramer control software	

1 Specifications are subject to change without notice

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8 Table of Hex Codes for Serial Communication

Table 6 lists the Hex values for a single machine (*MACHINE #* 1). 4 bytes of information are sent for each instruction. For more detailed information, see Protocol 2000[1].

Table 6: VP-108 Hex Codes

VIDEO[2]**:**

	OUT 1	OUT 2	OUT 3	OUT 4	OUT 5	OUT 6	OUT 7	OUT 8	ALL OUTPUTS
ON	01	01	01	01	01	01	01	01	01
	81	81	81	81	81	81	81	81	81
	81	82	83	84	85	86	87	88	80
	81	81	81	81	81	81	81	81	81
OFF	01	01	01	01	01	01	01	01	01
	80	80	80	80	80	80	80	80	80
	81	82	83	84	85	86	87	88	80
	81	81	81	81	81	81	81	81	81

AUDIO[3]**:**

	OUT 1	OUT 2	OUT 3	OUT 4	OUT 5	OUT 6	OUT 7	OUT 8	ALL OUTPUTS
ON	02	02	02	02	02	02	02	02	02
	81	81	81	81	81	81	81	81	81
	81	82	83	84	85	86	87	88	80
	81	81	81	81	81	81	81	81	81
OFF	02	02	02	02	02	02	02	02	02
	80	80	80	80	80	80	80	80	80
	81	82	83	84	85	86	87	88	80
	81	81	81	81	81	81	81	81	81

1 On our Web site at http://www.kramerelectronics.com

2 For audio-follow-video mode

3 For audio breakaway mode

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LIMITED WARRANTY

Kramer Electronics (hereafter *Kramer*) warrants this product free from defects in material and workmanship under the following terms.

HOW LONG IS THE WARRANTY

Labor and parts are warranted for seven years from the date of the first customer purchase.

WHO IS PROTECTED?

Only the first purchase customer may enforce this warranty.

WHAT IS COVERED AND WHAT IS NOT COVERED

Except as below, this warranty covers all defects in material or workmanship in this product. The following are not covered by the warranty:

1. Any product which is not distributed by Kramer, or which is not purchased from an authorized Kramer dealer. If you are uncertain as to whether a dealer is authorized, please contact Kramer at one of the agents listed in the Web site www.kramerelectronics.com.
2. Any product, on which the serial number has been defaced, modified or removed, or on which the WARRANTY VOID IF TAMPERED sticker has been torn, reattached, removed or otherwise interfered with.
3. Damage, deterioration or malfunction resulting from:
   i) Accident, misuse, abuse, neglect, fire, water, lightning or other acts of nature
   ii) Product modification, or failure to follow instructions supplied with the product
   iii) Repair or attempted repair by anyone not authorized by Kramer
   iv) Any shipment of the product (claims must be presented to the carrier)
   v) Removal or installation of the product
   vi) Any other cause, which does not relate to a product defect
   vii) Cartons, equipment enclosures, cables or accessories used in conjunction with the product

WHAT WE WILL PAY FOR AND WHAT WE WILL NOT PAY FOR

We will pay labor and material expenses for covered items. We will not pay for the following:

1. Removal or installations charges.
2. Costs of initial technical adjustments (set-up), including adjustment of user controls or programming. These costs are the responsibility of the Kramer dealer from whom the product was purchased.
3. Shipping charges.

HOW YOU CAN GET WARRANTY SERVICE

1. To obtain service on you product, you must take or ship it prepaid to any authorized Kramer service center.
2. Whenever warranty service is required, the original dated invoice (or a copy) must be presented as proof of warranty coverage, and should be included in any shipment of the product. Please also include in any mailing a contact name, company, address, and a description of the problem(s).
3. For the name of the nearest Kramer authorized service center, consult your authorized dealer.

LIMITATION OF IMPLIED WARRANTIES

All implied warranties, including warranties of merchantability and fitness for a particular purpose, are limited in duration to the length of this warranty.

EXCLUSION OF DAMAGES

The liability of Kramer for any effective products is limited to the repair or replacement of the product at our option. Kramer shall not be liable for:

1. Damage to other property caused by defects in this product, damages based upon inconvenience, loss of use of the product, loss of time, commercial loss; or:
2. Any other damages, whether incidental, consequential or otherwise. Some countries may not allow limitations on how long an implied warranty lasts and/or do not allow the exclusion or limitation of incidental or consequential damages, so the above limitations and exclusions may not apply to you.

This warranty gives you specific legal rights, and you may also have other rights, which vary from place to place.

NOTE: All products returned to Kramer for service must have prior approval. This may be obtained from your dealer.

This equipment has been tested to determine compliance with the requirements of:

EN-50081:	"Electromagnetic compatibility (EMC); generic emission standard. Part 1: Residential, commercial and light industry"
EN-50082:	"Electromagnetic compatibility (EMC) generic immunity standard. Part 1: Residential, commercial and light industry environment".
CFR-47:	FCC* Rules and Regulations: Part 15: "Radio frequency devices Subpart B Unintentional radiators"

CAUTION!

Servicing the machines can only be done by an authorized Kramer technician. Any user who makes changes or modifications to the unit without the expressed approval of the manufacturer will void user authority to operate the equipment.

Use the supplied DC power supply to feed power to the machine.

Please use recommended interconnection cables to connect the machine to other components.

* FCC and CE approved using STP cable (for twisted pair products)

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im Vertrieb von CAMBOARD Electronics

For the latest information on our products and a list of Kramer distributors, visit our Web site: www.kramerelectronics.com, where updates to this user manual may be found.
We welcome your questions, comments and feedback.

Safety Warning:
Disconnect the unit from the power supply before opening/servicing.

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